**Lesson one**

**Lesson title : Weathering, Erosion, and Soil Formation**

**Erosion** : The movement of broken rocks and soil.

**Deposition** : The settling of eroded materials.

**Weathering** – The breaking down of rocks.

**Types of Weathering**

**1. Physical (Mechanical) Weathering "Breaking Without Changing"**

Rocks break into smaller pieces without changing their composition.

**Examples:**

**Frost wedging:** Water gets into cracks, freezes, and expands.

**Thermal expansion:** Rocks heat up and cool down, causing cracks.

**Root growth:** Tree roots break rocks apart.

**2. Chemical Weathering "Changing Rock’s Composition"**

Rocks dissolve or change due to chemical reactions.

**Examples:**

**Rusting (oxidation):** Iron in rocks reacts with oxygen, turning reddish.

**Acid rain:** Rain mixed with pollution dissolves limestone and marble.

**3. Biological Weathering "Living Things Breaking Rocks"**

Plants, animals, and bacteria break down rocks.

**Examples:**

**Lichens release acids** that break down rock.

**Burrowing animals** loosen soil and rocks.

a small piece of chalk (as a rock) drop one in **water** (no change), another in **vinegar** (chemical weathering), and rub a third with sandpaper (physical weathering).

**Erosion – Moving Rocks and Soil**

Explain how **wind, water, ice, and gravity** move sediments.

**Examples:**

**Wind erosion:** Sand dunes form in deserts.

**Water erosion:** Rivers carry soil to the ocean.

**Glacier erosion:** Ice carves valleys.

**4. Soil Formation :** Soil is formed from **weathered rock and organic matter** over thousands of years.

Components of soil:

**Minerals** from weathered rock.

**Organic matter** (decayed plants and animals).

**Air and water** in soil pores.